UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,965	02/25/2004	Byung-cheol Song	Q79308	8470

23373 7590 04/25/2007

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
AZARIAN, SEYED H	
ART UNIT	PAPER NUMBER
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/784,965	SONG, BYUNG-CHEOL	
	Examiner	Art Unit	
	Seyed Azarian	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,7-9,11-15 and 19-26* is/are rejected.

7)☒ Claim(s) *4-6,10 and 16-18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 11 and 19 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "the method of claim 8, wherein in step (b4) " claim 8, does not have step (b4). There is insufficient antecedent basis for this limitation in the claim. The same for claim 19.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 7-9, 11-15 and 19-26, are rejected under 35 U.S.C. 103(a) as being unpatentable over Demos (U.S. patent 6,442,203) in view of Ohmi et al (U.S. patent 5,923,779).

Regarding claim 1, Demos discloses a method of detecting a film image, comprising, (a) receiving a predetermined number of similarity values of two adjacent fields of the same kind from an image having interlaced fields (Fig. 5, column 6, lines

42-45, current frame is compared to similarly-sized region in a previous frame in an attempt to find a good match):

(b) classifying the similarity values which are received into a first group and a second group (column 9, lines 15-34, using algorithm, at the first stage of the hierarchy, the best match is found between all pixels in the match region with pixels in a previous or subsequent frame);

(d) determining whether the image is a film image according to a period of the converted values (column 19, lines 28-40, the system looks two frames back and head (film-based) for converting).

Regarding claim 1, Demos discloses (Fig. 10, column 6, lines 59-64, a base set of frames are converted to a set of different frames), but does not explicitly state its corresponding "similarity values classified in the first group and the similarity values classified in the second group". On the other hand Ohmi teaches (column 6, lines 22-39, the classified matching patterns is also prepared as 2-dimensional picture element data, the absolute value of the difference between the two is determined for each picture element).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Demos invention according to the teaching of Ohmi because combination of Demos and Ohmi provides a computing circuit having instantaneous recognition functions for classifying between two images, which can easily implemented in an image processing device.

Regarding claim 2, Demos discloses the method of claim 1, wherein the similarity values comprise values of a sum of absolute differences of differences between pixel values of the two adjacent fields of the same kind (column 12, lines 28-42, at each pixel, a computation is made of the absolute value of the sum of the differences).

Regarding claim 3, Demos discloses the method of claim 2, wherein the predetermined number in step (a) corresponds to two times of a pattern period of the sum of absolute differences (see claim 2, also column 21, line 65 through column 22, line 32, the motion vector proportions for the new frame, based upon its position in time between the two adjacent frames, will result in sub-pixel resolution).

Regarding claim 8, Demos discloses the method of claim 1, wherein the similarity values are values of a sum of magnitudes of motion vectors between the two adjacent fields of the same kind (column 21, line 65 through column 22, line 32, the motion vector proportions for the new frame, based upon its position in time between the two adjacent frames, will result in sub-pixel resolution, also column 17, line 53 through column 18, line 14).

Regarding claim 9, Demos discloses the method of claim 8, wherein the predetermined number in step (a) corresponds to two times of a pattern period of the sum of magnitudes of motion vectors (column 21, lines 4-27, the magnitudes of motion vectors in different time).

Regarding claim 11, Demos discloses the method of claim 8, wherein in step (b4), the central point of the group in which the value of the sum of magnitudes of motion vectors is classified is updated to a middle value between the original central

point and an added value of the sum of magnitudes of motion vectors (see claim 8, also Fig. 7, column 9, lines 58-67, refer to center point and comparison).

Regarding claim 12, Demos discloses a method of detecting a film image, comprising: receiving a predetermined number of coordinate values (SAD, M) consisting of the sum of absolute differences and motion vectors of fields of an image, classifying the coordinate values which are received into a first group and a second group, converting the coordinate values classified in the first group and the second group into values different from each other (see claim1, also column 12, line 43 through column 13, line 3, the absolute value of the summed differences).

Regarding claim 13, Demos discloses the method of claim 12, wherein the image in step (a) has interlaced fields (column 14, line 66 through column 15, line 8, refer to interlaced fields).

Regarding claim 14, Demos discloses the method of claim 12, wherein the coordinate values consisting of the sum of absolute differences and the motion vectors are normalized using maximum values of the sum of absolute differences and the motion vectors (column 8, lines 8-27, normalizing to the range available in the pixel, also column 9, line 58 through column 10, line 12, maximum weight and pixels at the maximum search radius from the center point).

Regarding claim 21, Demos discloses the apparatus of claim 20, wherein the similarity values are a sum of absolute differences meaning differences between pixel values of the two adjacent fields of the same kind (column 21, line 65 through column

22, line 32, the motion vector proportions for the new frame, based upon its position in time between the two adjacent frames, will result in sub-pixel resolution).

Regarding claim 25, Demos discloses a computer-readable recording medium having recorded thereon a program for executing an image detection method in a computer, the method comprising, (a) receiving a predetermined number of similarity values of two adjacent fields of the same kind from an image having interlaced fields, (b) classifying the similarity values which are received into a first group and a second group (see claim 1, also column 23, lines 53-62, computer-readable storage medium).

With regard to claims 7, 15, 19-20, 22-24 and 26 the arguments analogous to those presented above for claims 1, 2, 3, 8, 9, 21 and 25 are respectively applicable to claims 7, 15, 19-20, 22-24 and 26.

Allowable Subject Matter

4. Claims 4-6, 10 and 16-18 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other prior art cited

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(U.S. patent 7,139,019) to Kondo et al is cited for image processing device.

(U.S. patent 5,414,779) to Mitch is cited for image frame detection.

(U.S. patent 6,823,012) to Song is cited for method and system for estimating motion vector at high speed for low bit-rate coding.

(U.S. patent 6,563,951) to Fahraeus et al is cited for method and device for matching images.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.
Status information about the PAIR system, see http:// pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seyed Azarian
Patent Examiner
Group Art Unit 2624
April 8, 2007